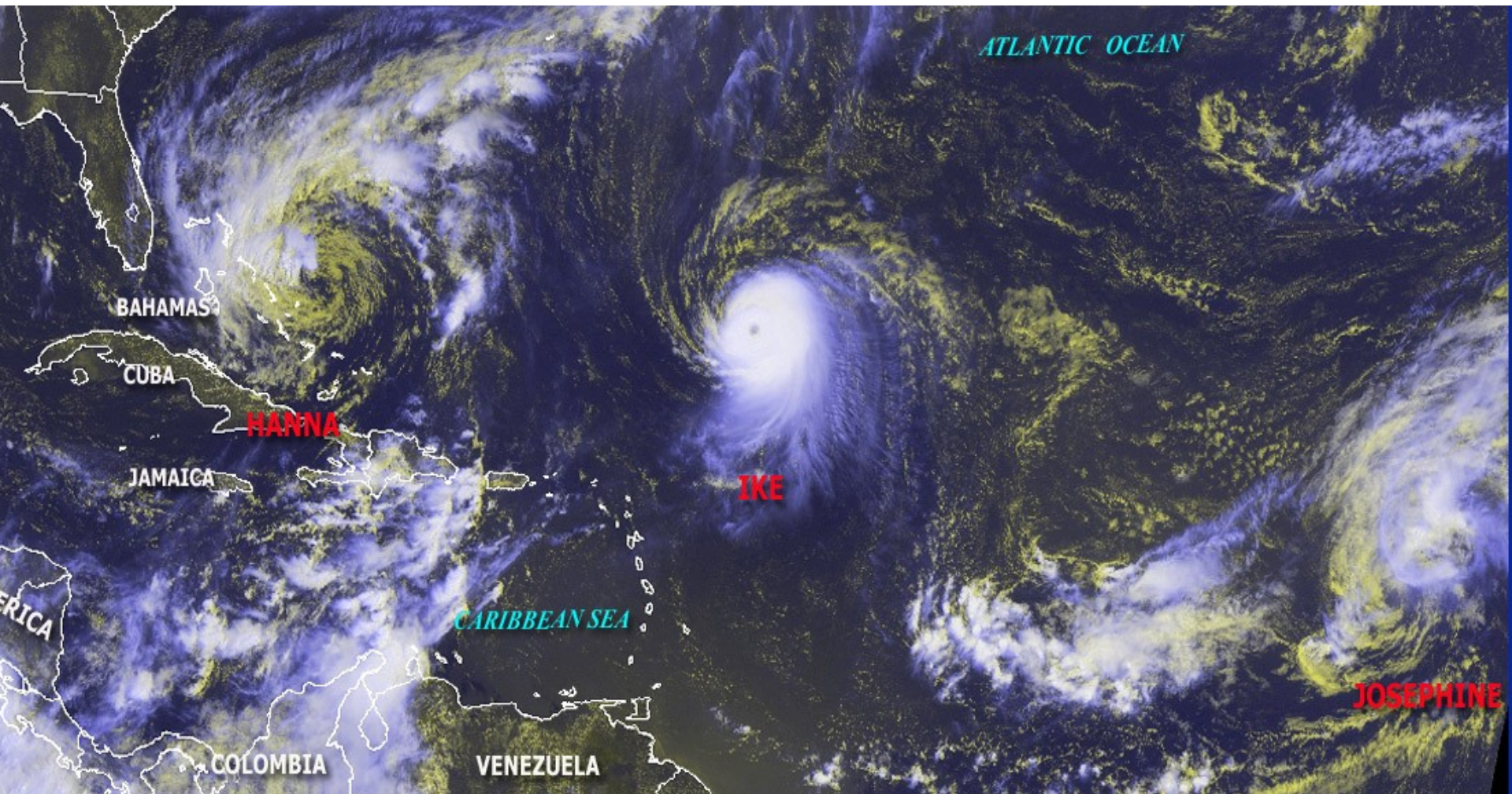




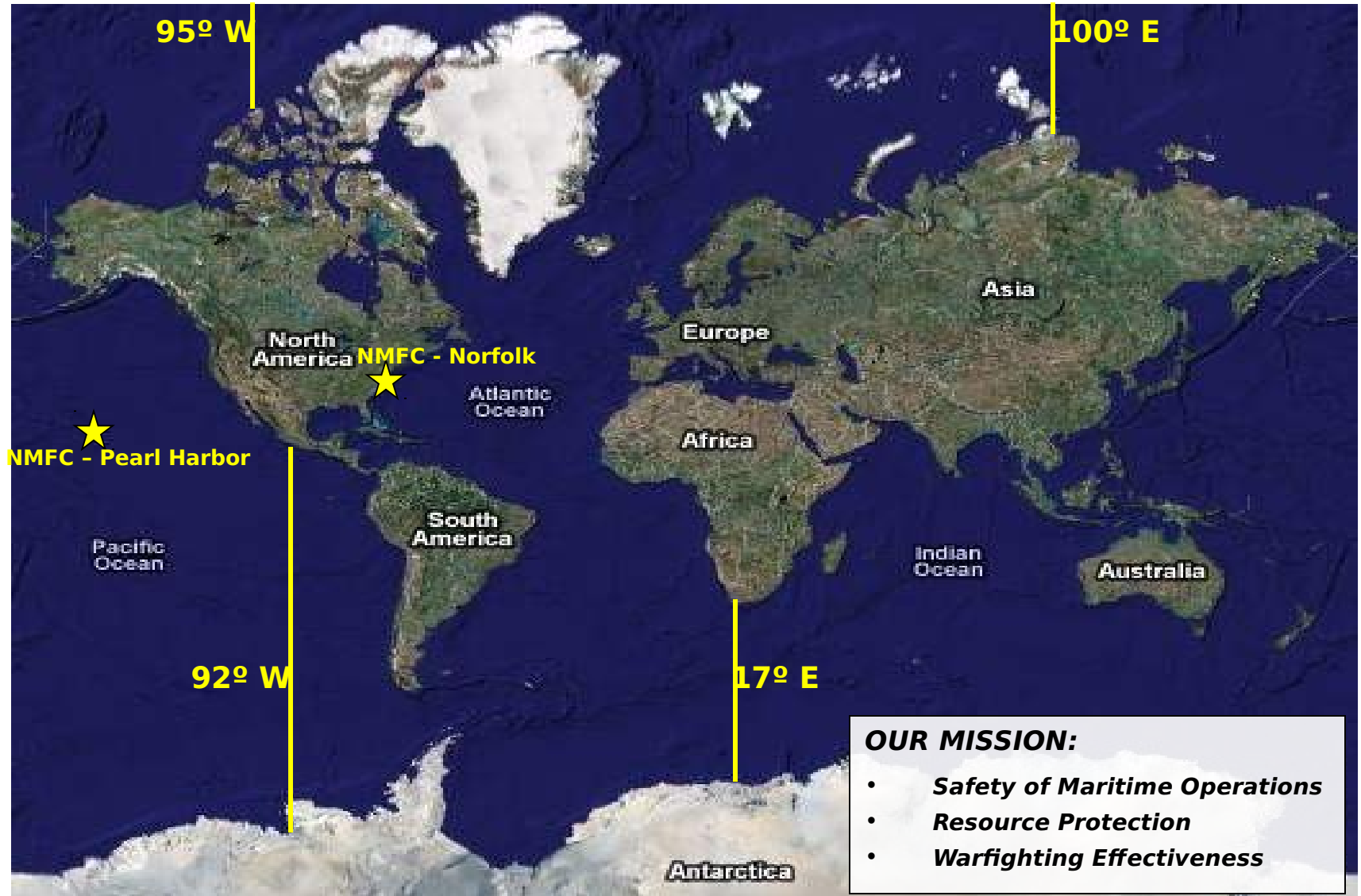
# **2009 ATLANTIC TROPICAL CYCLONE SUPPORT**

**Naval Maritime Forecast Center (NMFC)  
Norfolk, VA**





# NMFC Norfolk & Pearl Harbor AORs







# CNIC, C2F, and C6F Bases Supported

## CNRSE

NAS Jacksonville  
NAVSTA Mayport  
NAS Key West  
NSA Panama City  
NAS Pensacola  
NAS Whiting Field  
NWS Charleston  
NSB Kings Bay  
NSC School Athens  
NCBC Gulfport  
NAS Meridian  
NAVBASE Guantanamo  
NAS JRB New Orleans  
NSA New Orleans  
NS Ingleside  
NAS Corpus Christi  
NAS Kingsville  
NAS JRB Fort Worth

## NDW

NSA North Potomac  
NSA South Potomac  
NSA Washington  
NSA Annapolis  
NAS Pax River



## CNRMA

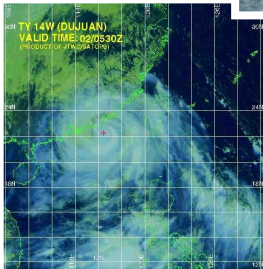
NSB New London  
NAS Brunswick  
NS Portsmouth  
NAES Lakehurst  
NWS Earle  
NSA Philadelphia  
NAVSTA Newport  
Cheatham Annex  
NSGA Sugar Grove  
Craney Island  
Dam Neck Annex  
Lafayette River Annex  
NAS Oceana  
NAB Little Creek  
NAVSTA Norfolk  
NWS Yorktown  
NS Norfolk  
NAS JRB Willow Grove





# Maritime Operations

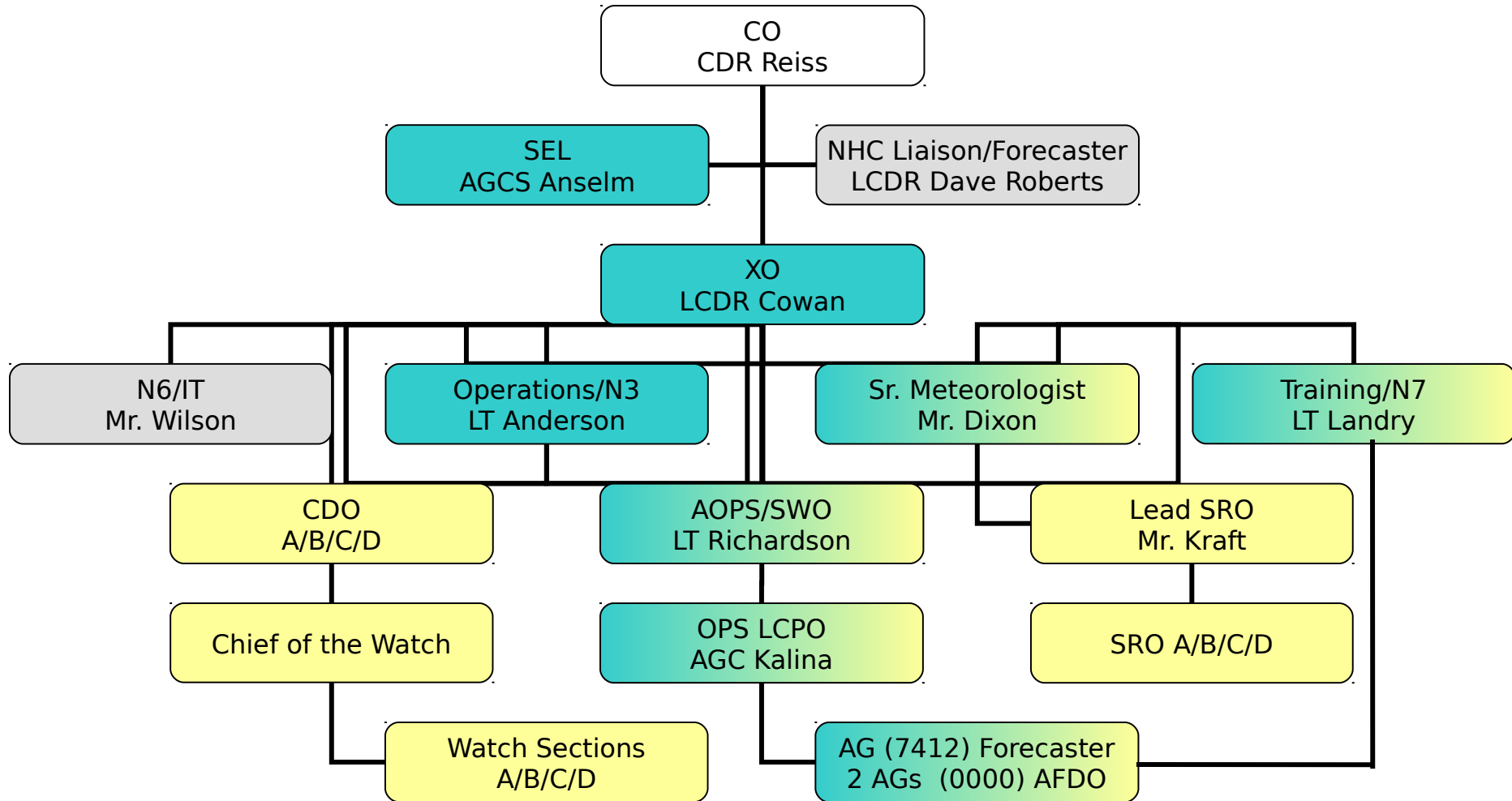
- **Naval Maritime Forecast Center, Norfolk, VA**
  - **C2F, C4F, & C6F**
- **Maritime Safety & Readiness**
- **24/7 hour Global Coverage**



- **Optimum Track Ship Routing (OTSR)**
- **Ship weather forecasts (WEAX)**
- **Aviation weather forecasts for ship-based helicopters (AVWX)**
- **Tropical Cyclone**
  - **Warnings**
  - **Tropical Cyclone Condition of Readiness Recommendations**
- **Warnings and advisories**
  - **High wind and seas**
  - **Special weather advisories**
  - **Local area warnings**
- **Maritime OPAREA Forecasts**



# NAVMARFCSTCEN - Norfolk





# **NAVMARFCSTCEN NORFOLK**

## ***Customers / Products***

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### **Customers**

- **Fleet Staffs: FFC, C2F, C4F/ NAVSO, C6F, SUBFOR, JIATF-S**
- **CNIC Staffs: CNRSE, CNRMA, NDW (Maritime RP/Tropical support)**
- **COCOMs: NORTHCOM, SOUTHCOM, JFCOM, CENTCOM**
- **Other: MSC, USCG, NOAA, US Army, NATO/Allied units, Individual U.S. Ships**

### **Support provided**

- **OTSR & WEAX (USS/USNS/USCG/USA/NATO)**
- **CNRE: Eur/Med Port Forecasts & Warnings**
- **CONUS Forecasts & Warnings for ships in-port (leveraging NWS)**
- **Maritime OpArea forecasts (FOXX, CTG 20.3, JMFU support, etc...)**
- **Atlantic/Caribbean/GOMEX/CONUS Tropical Cyclone support**
  - **Region/Installation Support for TC CORs (Destructive Wind Forecast)**
  - **Fleet Support for SORTIEs and diverts/advisories for ships underway**
- **Sub Harbor Point Forecasts (BSP)**
- **PCO Briefs, NAV/QM training, Army training, presentations in fleet forums**



# Tropical Season FAQs

## Saffir-Simpson Scale

Cat	Wind (kts)	Surge (ft)
-----	------------	------------

1	64-82	4-5
---	-------	-----

Minimal

2	83-95	6-8
---	-------	-----

Moderate

3	96-113	9-12
---	--------	------

Extensive  
Cat 3/4/5 systems are "Major hurricanes"

4	113-135	13-18
---	---------	-------

Excessive  
2009 Tropical Cyclone Names

5	> 135	> 18
Ana	Henri	Odette

Catastrophic  
Bill Ida

Peter

Claudette Joaquin Rose

Danny Kate Sam

Erika Larry Teresa

Fred Mindy Victor

Grace Nicholas Wanda

## Stages of Development ~~Hurricane~~

≥ 64 kts

Naming Begins

Tropical Storm

34-63 kts

Numbered Wrngs begin

Tropical Depression

25-33 kts

Tropical Disturbance

< 25 kts

## Tropical Cyclone Symbols

( Tropical Wave

L Low Pressure Center  Tropical Depression

 Tropical Storm  Hurricane



# ***Tropical Cyclone 101***

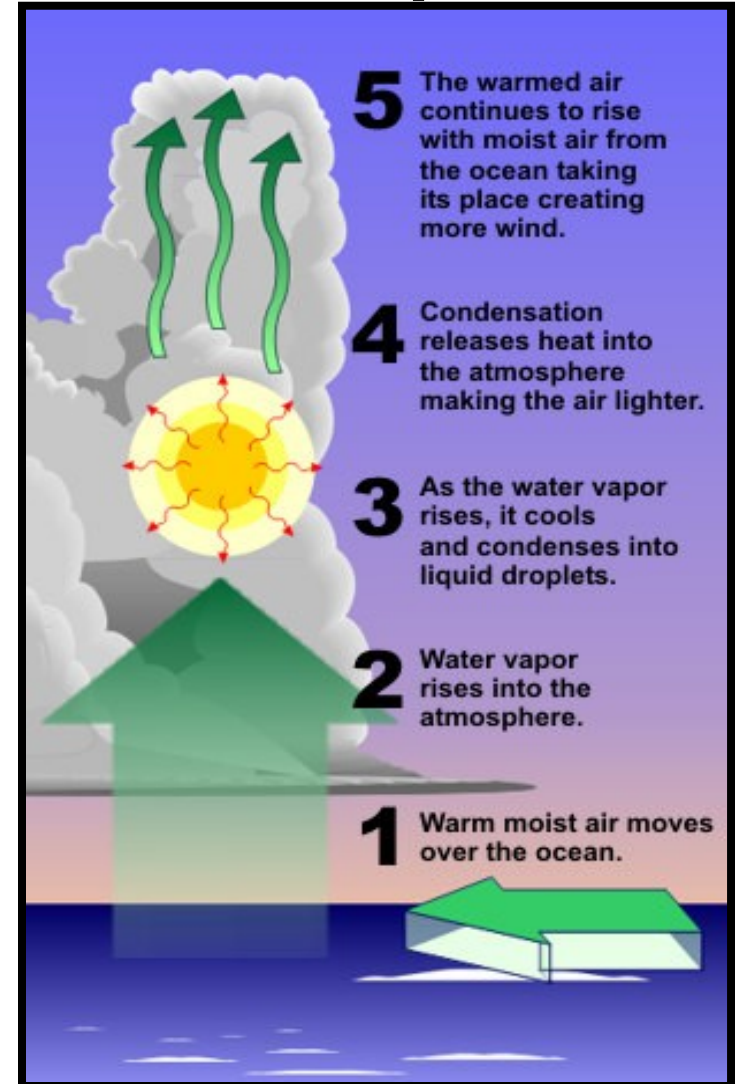
## **Formation Basins**



### **Favorable Conditions**

- Warm water ( $>80^{\circ}$  deg) to 150 ft
- Conditionally unstable atmosphere
- Moist air ~ 16,000 ft
- 300nm or more from Equator
- Pre-existing disturbance

## **Development**



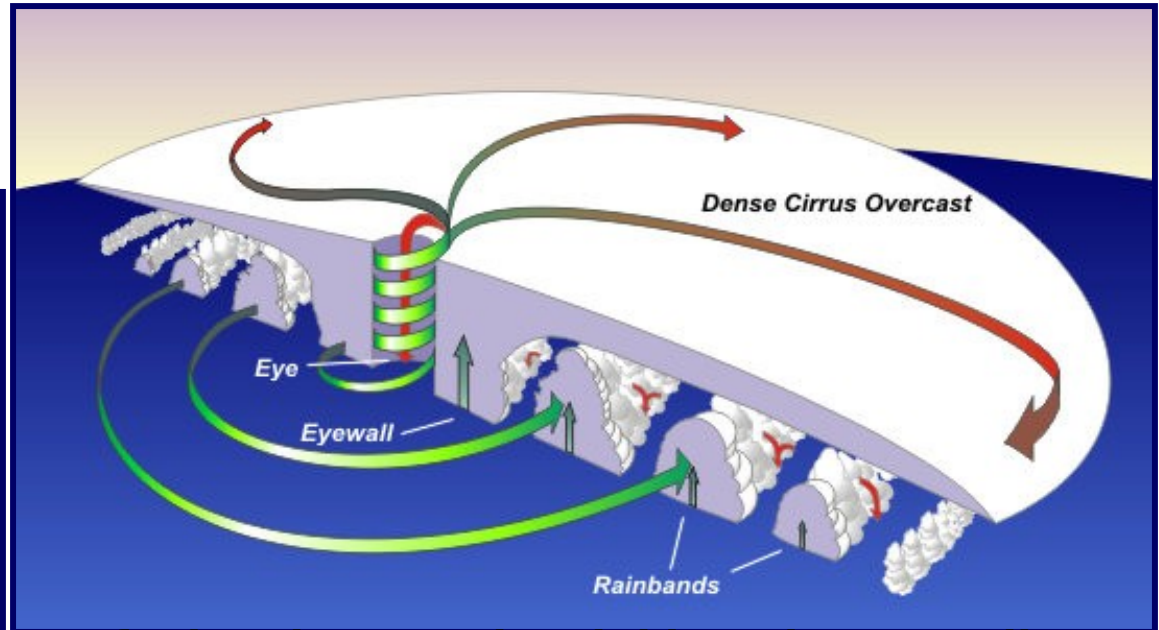
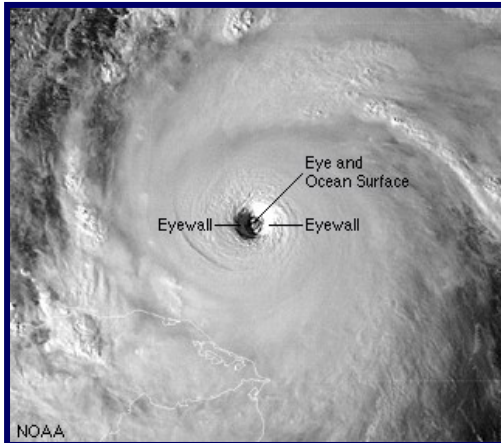




# Tropical Cyclone Structure

## Hurricane Structure:

- Rainbands
- Eyewall
- Eye



The **eye** is the calmest part of a hurricane. The sinking air generally cause calm to light winds and is mostly cloud free. The surface pressure near the eye is very low. The lower the pressure, the stronger the storm.

The **eye wall** is the most violent part of a hurricane. The eye wall is almost a complete ring of thunderstorms and contains the strongest winds in the hurricane.

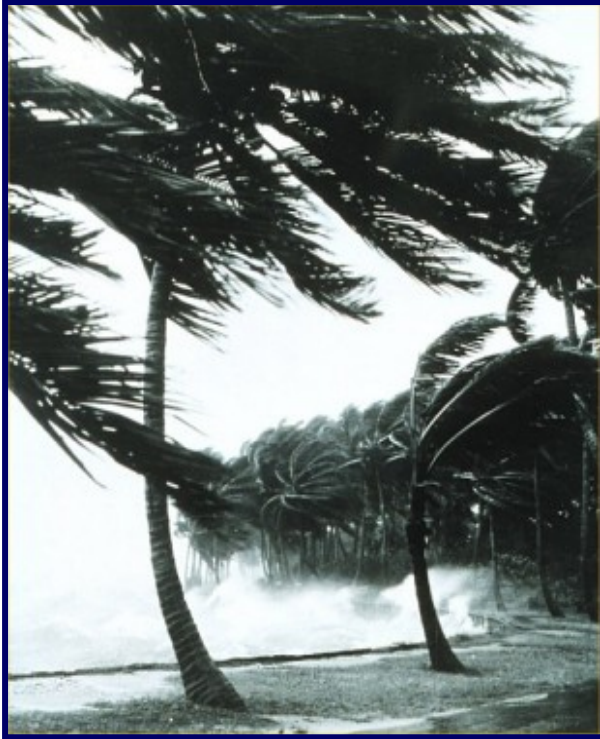
**Rainbands** are curved bands of clouds and thunderstorms that trail away from the eye wall in a spiral fashion and are capable of producing heavy bursts of rain, wind, and possibly tornadoes.



# ***Tropical Weather Phenomena***

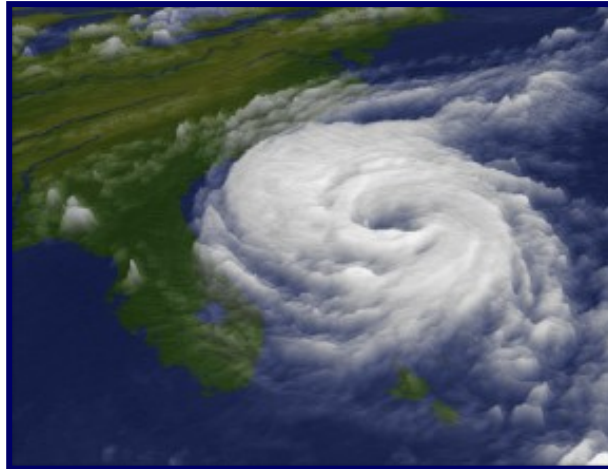
## **TORNADOS**

- Embedded in T-storms



## **WINDS**

Flying debris & missile hazards



## **TORRENTIAL RAIN/FLOOD S**

More than 6 inches in less than 8 hrs is possible





# Storm Surge “WALL OF WATER”

**Storm surge:**

**An abnormal rise of the sea in advance of or with the cyclone**

**Caused by:**

- **Low pressure at center**

## MEASURING STRENGTH

The National Weather Service categorizes hurricanes by intensity on a scale of 1 to 5:

**5** > 135 KTS  
> 18 FT

**4** 114-135 KTS  
13-18 FT

**3** 97-113 KTS  
9-12 FT

**2** 84-96 KTS  
6-8 FT

**1** 64-83 KTS  
4-5 FT

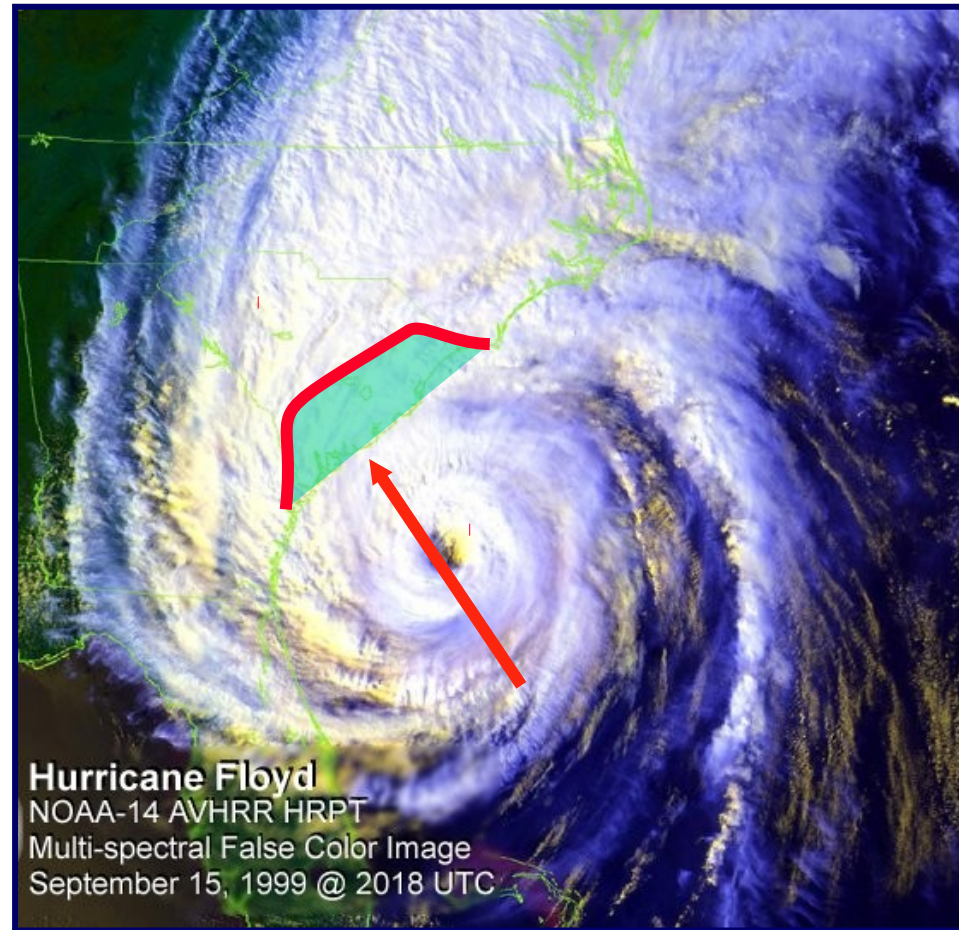
25 FT

18 FT

12 FT

8 FT

SEA LEVEL



**Note: Hurricane Ike in 2008 had a storm surge in excess of 20 ft as a CAT 2.**



# Storm Surge plus Tidal Influence



Biloxi, Ms., October 4, 2005  
Destroyed Mississippi gulf coast Highway I-90



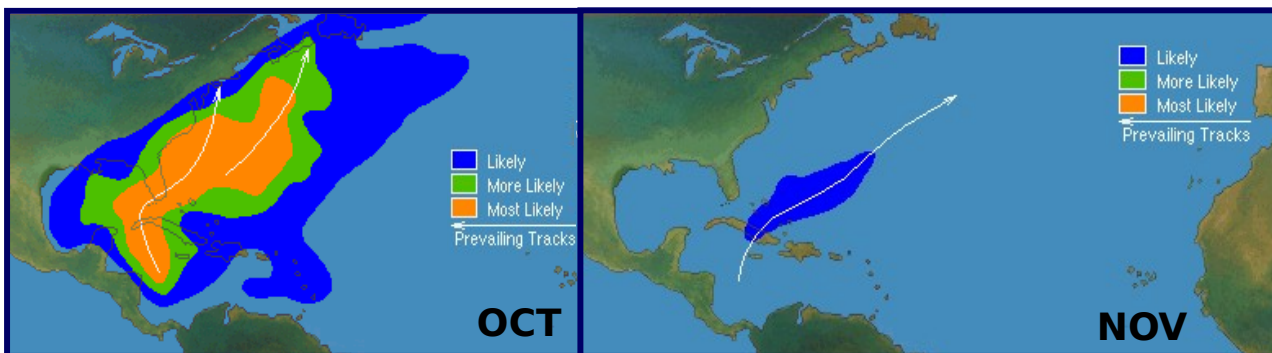
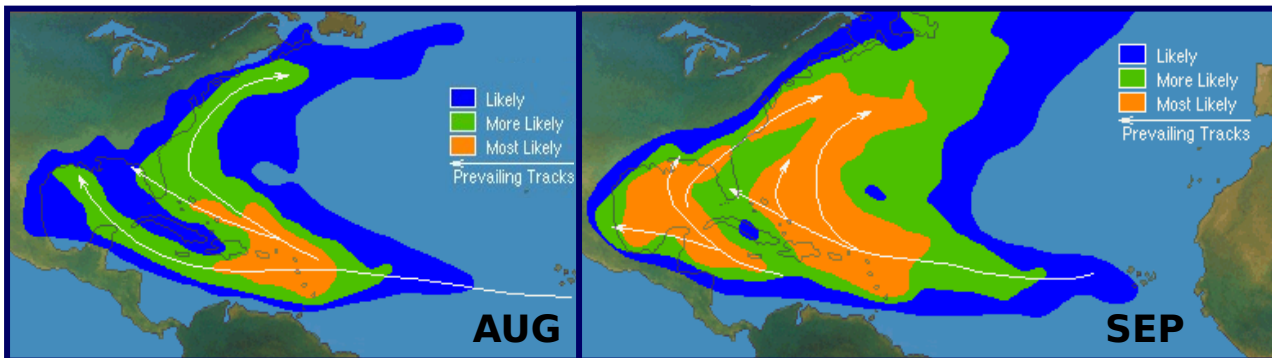
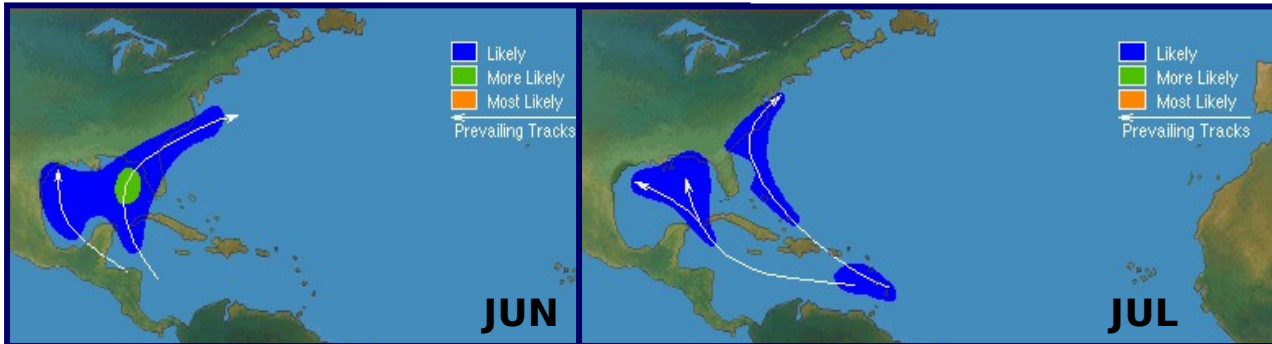
**Wind-driven waves  
cause even more damage**



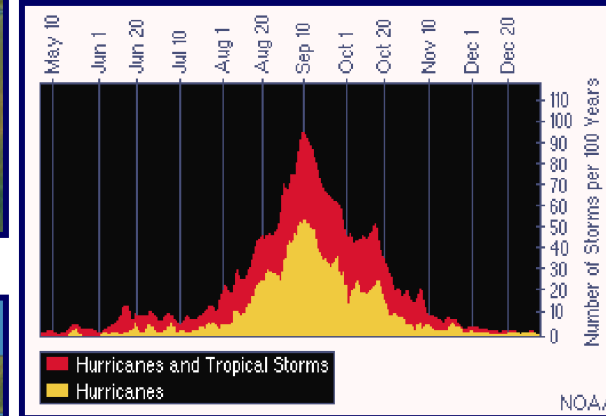




# Track Climatology



## Peak season: 10 SEP

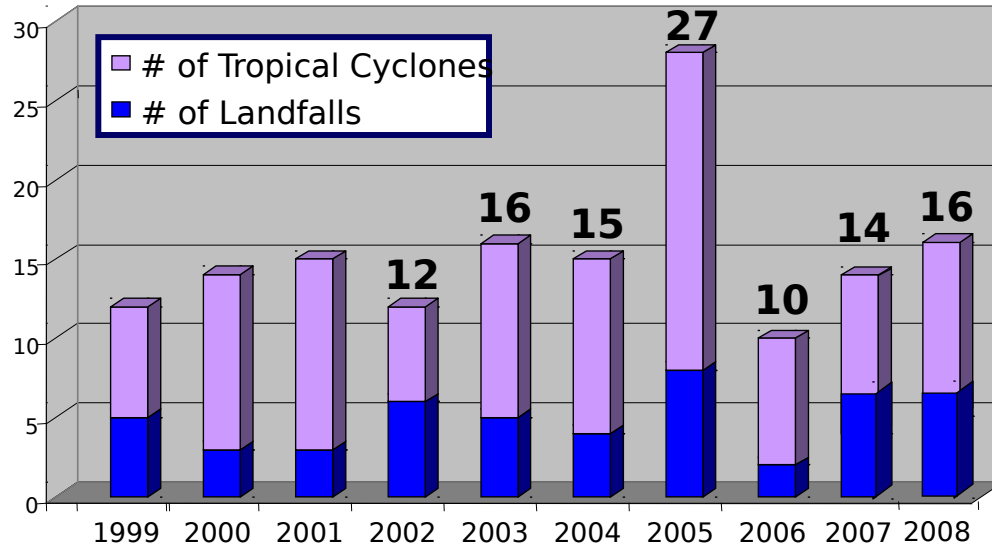


## GOMEX/CARIB water temps

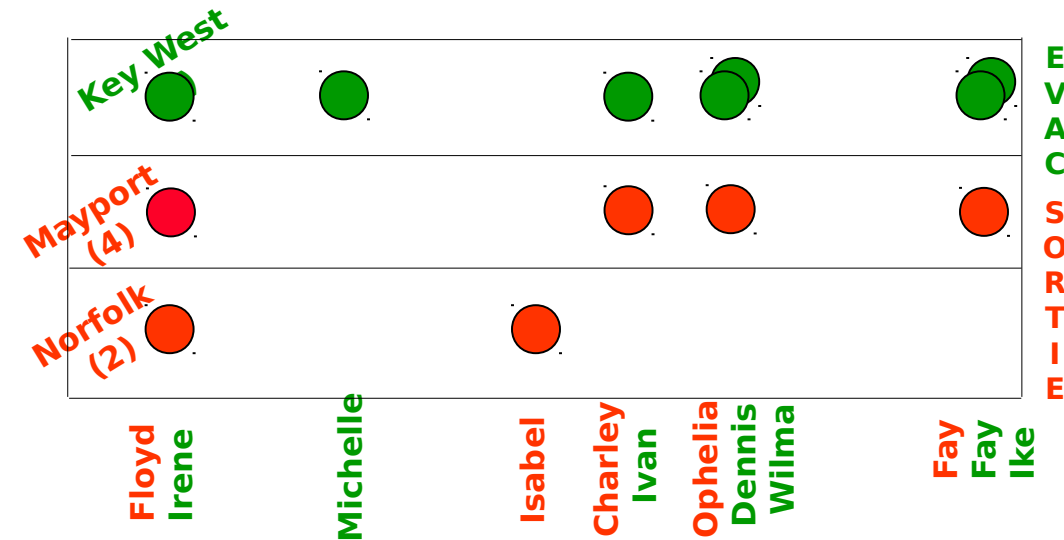




# Tropical History



Year	# of
TCs	
2002	12
2003	16
2004	15
2005	27
2006	10
2007	14
2008	16



	2008	2005	100-yr Ave
Named	16	27	9
Cat 1-2	3	15	4
Cat 3-5	5	7	2
Landfall	3	6	7

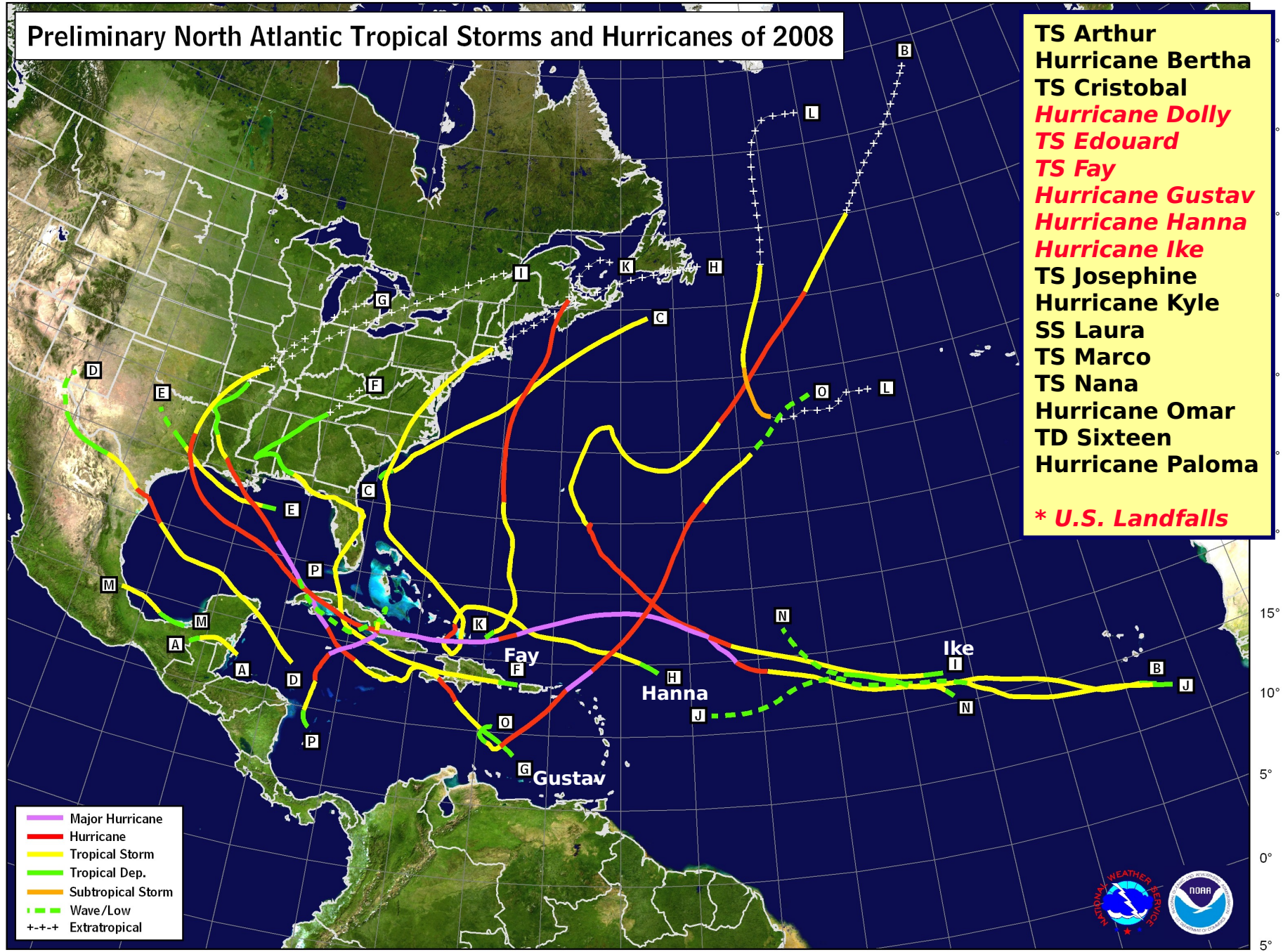


125° 120° 115° 110° 105° 100° 95° 90° 85° 80° 75° 70° 65° 60° 55° 50° 45° 40° 35° 30° 25° 20° 15° 10° 5° 0° 5° 10°

# Preliminary North Atlantic Tropical Storms and Hurricanes of 2008

- TS Arthur**
  - Hurricane Bertha**
  - TS Cristobal**
  - Hurricane Dolly***
  - TS Edouard***
  - TS Fay***
  - Hurricane Gustav***
  - Hurricane Hanna***
  - Hurricane Ike***
  - TS Josephine**
  - Hurricane Kyle**
  - SS Laura**
  - TS Marco**
  - TS Nana**
  - Hurricane Omar**
  - TD Sixteen**
  - Hurricane Paloma**
- \* U.S. Landfalls***

- Major Hurricane
- Hurricane
- Tropical Storm
- Tropical Dep.
- Subtropical Storm
- Wave/Low
- Extratropical





# ***2008 Atlantic Hurricane Season Records***

---

- A total of **16 named storms** with **8 Hurricanes**
  - Season tied as the 4<sup>th</sup> most active in terms of named storms (16) and major hurricanes (5).
- 1<sup>st</sup> time on record, **6 consecutive tropical cyclones** made **landfall on the U.S. mainland**.
  - (Dolly, Edouard, Fay, Gustav, Hanna and Ike)
- 1<sup>st</sup> Atlantic season to have a **major hurricane** (Category 3+) form in **five consecutive months**
  - (July: Bertha, August: Gustav, September: Ike, October: Omar, November: Paloma).





# 2008 Noteworthy Findings

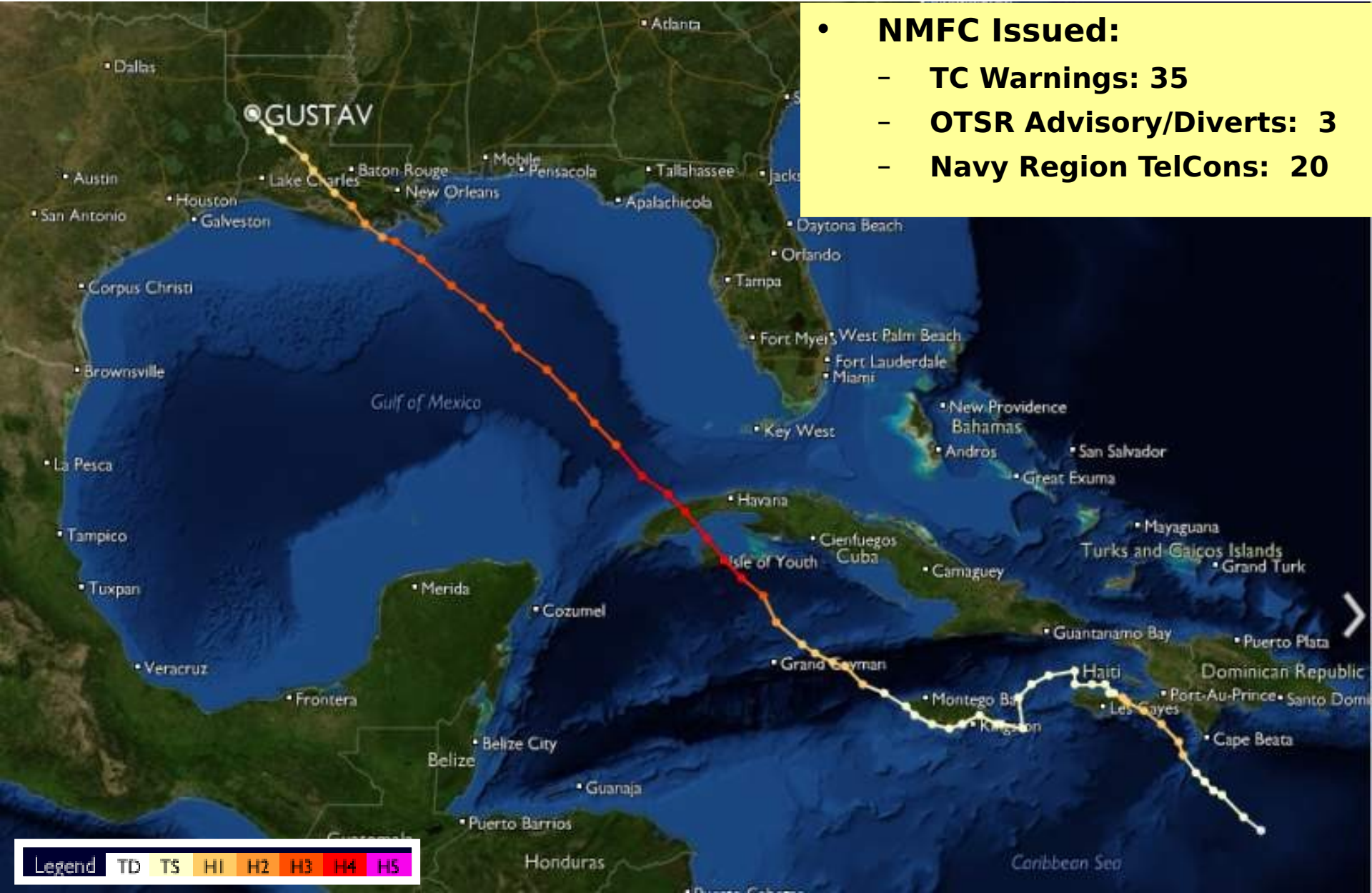
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- **Bertha** was a tropical cyclone for **17 days** (July 3-20), making it the **longest-lived July storm** in the Atlantic.
- **Fay** is the only storm to make **landfall four times in the state of Florida**.
  - Fay prompted tropical storm and hurricane watches and warnings for the state's entire coastline during its lifespan.
- The **most destructive was Hurricane Ike**. Its force affected eastern portions of Texas and a week later its remnants impacted the Great Lakes region.
- The damage for 2008 was estimated at **\$54 billion**.
- That's **2<sup>nd</sup> in recorded history only to 2005**, the year Hurricanes Katrina and Rita devastated the Gulf Coast.
  - The total for 2005 was an estimated \$128 billion.



# Hurricane Gustav

- **NMFC Issued:**
  - **TC Warnings: 35**
  - **OTSR Advisory/Diverts: 3**
  - **Navy Region TelCons: 20**





# Hurricane Hanna

**BDA: NAVSTA EM “Norfolk had minor power outages, one power line down, one building lost a 3ft by 20 ft section of metal roofing, and several trees/branches down.”**

**Kings Bay Sortied**

**Mayport “C”**

**Norfolk “B”**

- **NMFC Issued:**
  - TC Warnings: 42
  - OTSR Advisory/Diverts: 23
  - Navy Region TelCons: 12
- **NMFC recommended “No Sortie” for all Fleet Concentration Areas.**
- **No winds observed  $\geq$  50 kts.**
- **36 ships prepared to push out to sea Friday, 05 SEP to avoid Tropical Storm Hanna**
- **“NO GO” Estimated cost savings: \$10M**
- **~ 150 ACFT, mostly F/A-18s departed NAS Oceana headed for safe haven on Navy and Air Force bases in the eastern U.S.**

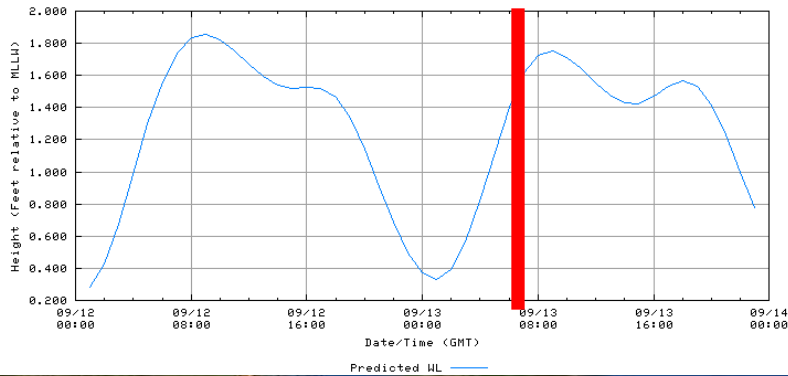
**Legend** TD TS HI H2 H3 H4 H5





# Hurricane Ike

Corpus Christ, TX. Predicted Water Level



- **NMFC Issued:**
  - **TC Warnings: 53**
  - **OTSR Advisory/Diverts: 3**
  - **Navy Region TelCons: 19**

- **TX Tri-Base Area Reccos:**
  - **TC CORs**
  - **ACFT Evac for NAS Kingsville and Corpus Christi**
  - **Nest conditions for 9 MCMs at NS Ingleside**

**AUTEC  
Range Craft**

**BDA: GTMO CO** "We kept the power grid up throughout the night and experienced isolated neighborhood power outages. We did have some tree limb damage, street sign departures, and lost some canopies/awnings. Some minor siding damage to a few buildings is evident.

Legend TD TS HI H2 H3 H4 H5



# Hurricane IKE OTSR Concerns

**Galveston Storm Surge 13 FT  
at landfall 13 SEP ~0210 CDT  
Forecast Surge: 13-16 FT**

**Various USCG and NOAA's  
Return to / Remain in Port**

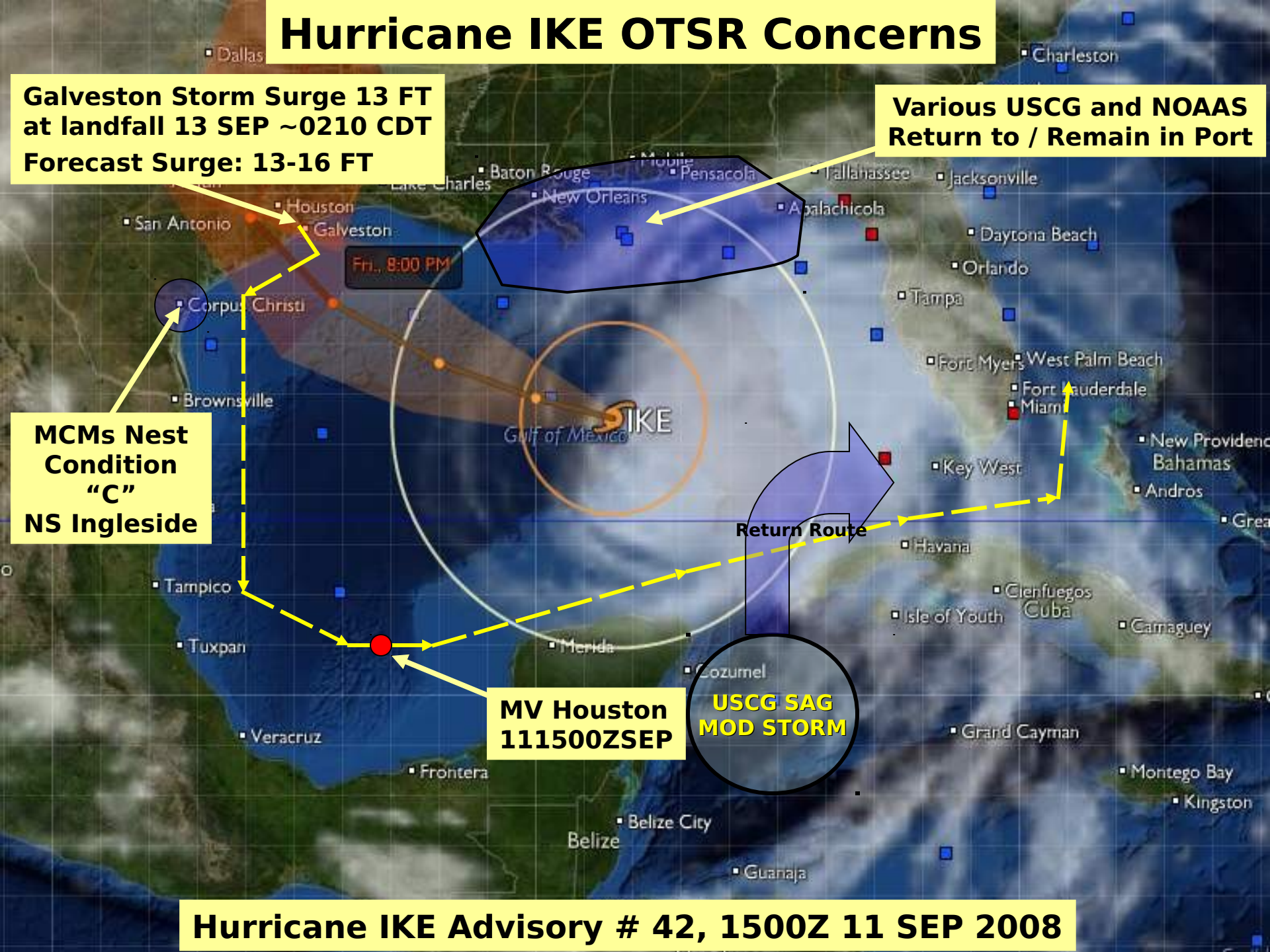
**MCMs Nest  
Condition  
"C"  
NS Ingleside**

**MV Houston  
111500ZSEP**

**USCG SAG  
MOD STORM**

**Return Route**

**Hurricane IKE Advisory # 42, 1500Z 11 SEP 2008**





# Verification & 2009 Atlantic Forecast

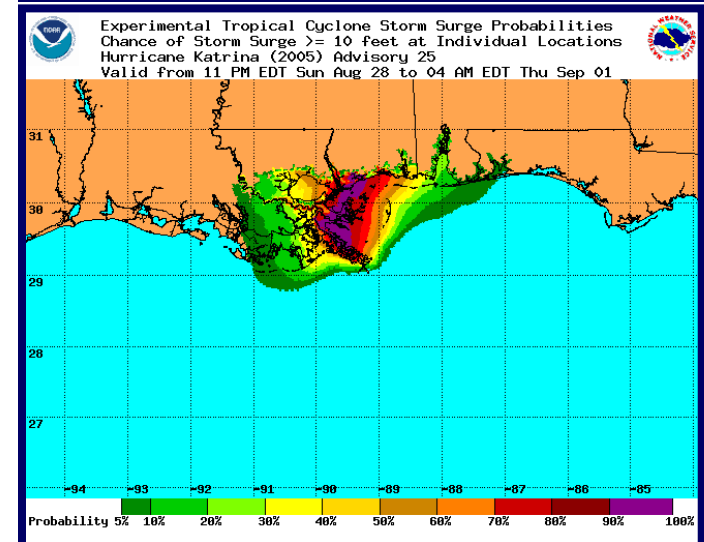
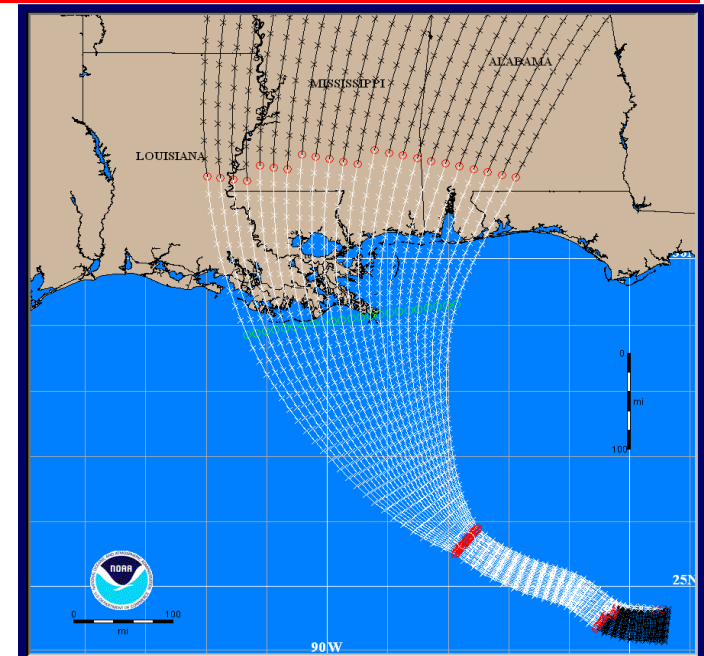
Forecast Verification	100-yr Average	Apr 05 Fcst/ <b>Actual</b>	Apr 06 Fcst/ <b>Actual</b>	Apr 07 Fcst/ <b>Actual</b>	Apr 08 Fcst/ <b>Actual</b>
Named Storms	9	13 / <b>27</b>	17 / <b>10</b>	14 / <b>14</b>	15 / <b>16</b>
Hurricanes	4	7 / <b>15</b>	9 / <b>5</b>	7 / <b>6</b>	8 / <b>8</b>
Major Hurricanes	2	3 / <b>7</b>	5 / <b>2</b>	3 / <b>2</b>	4 / <b>5</b>

- The new forecast is based on weak La Niña conditions to transition to neutral and perhaps weak El Niño conditions by this year's hurricane season. If El Niño conditions develop for this year's hurricane season, it would increase levels of vertical wind shear and decrease hurricane activity. Another reason for the forecast reduction is due to cooling of sea surface temperatures in the tropical Atlantic. Cooler waters are less conducive for an active hurricane season.
- The Atlantic has seen a very large increase in major hurricanes during the 14-year period of 1995-2008 (average 3.9 per year) in comparison with the prior 25-year period of 1970-1994 (average 1.5 per year).
- Long-range forecasts don't have a lot of practical value beyond focusing public attention on the dangers.



# 2009 NHC Product Changes

- **Graphical Tropical Weather Outlook (TWO) becomes operational**
  - Text TWO to include three-tiered categorical genesis forecast
  - “Special” TWOs to be issued instead of the Special Tropical Disturbance Statements
- **Probabilistic storm surge graphic becomes operational**
- **Development of storm surge inundation products**
- **Tropical cyclone wind field graphic becomes operational**





# ***2009 NHC Product Changes***

---

- **“Repeat” section of Public Advisory will change to a more parsable / easy-to-read format:**

**...SUMMARY OF 1100 PM EST INFORMATION...**

**LOCATION...23.7N 72.2W**

**MAXIMUM WINDS...40 MPH**

**PRESENT MOVEMENT...WEST OR 275 DEGREES AT 8 M**

**MINIMUM CENTRAL PRESSURE...1001 MB**

- **NHC Monthly Tropical Weather Summaries will be shortened to a tabular summary of cyclones during the month and a short narrative of records of interest.**
- **“Z” time will always be referenced as “UTC” in all advisory products.**
- **Time zone referenced in the tropical cyclone discussion (TC) will now be the same time zone that is used in the public advisory (TCP).**



# Recent Additions to NHC Web

- Graphical Tropical Weather Outlook (TWO) RSS/XML feed
- Improved version of website for PDAs and smart phones
- Experimental PODCAST available when NHC media pool activated (usually when Hurricane warning in effect for U.S.)

 **National Weather Service**  
**National Hurricane Center** 

Home News Organization Search  Go

Local forecast by "City, ST" or "ZIP"  Go

Alternate versions  
Text-only | PDA | Cell

Get Storm Info  
Satellite | Radar  
Aircraft Recon  
Advisory Archive  
Experimental  
Mobile Products  
E-mail Advisories  
Audio/Podcasts  
GIS Data | RSS  
Help with Advisories

Marine Forecasts  
Atlantic and E Pacific  
Forecast and Analysis Tools  
Help with Marine

Hurricane Awareness  
Be Prepared | Learn  
Frequent Questions  
AOML Research  
Hurricane Hunters  
Saffir-Simpson Scale  
Forecasting Models  
Eyewall Wind Profiles  
Glossary/Acronyms  
Storm Names  
Breakpoints

Hurricane History  
Seasons Archive  
Forecast Accuracy  
Climatology  
Most Extreme

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Library  
Joint Hurr Testbed  
The NCEP Centers

Contact Us - Help

**Top News of the Day.....view past news** *Last update Mon, 5 Jan 2009 16:15:25 UTC*

- 2008 Atlantic Hurricane Season Sets Records....read NHC summary
- View NOAA's High Resolution Animation of the 2008 Atlantic Hurricane Season

**Eastern Pacific** **Atlantic**

**Atlantic Tropical Cyclone Activity**



11:32 PM EST  
Nov 30, 2008

48-hour formation potential:   Low <20%   Medium 20-50%   High >50%

Graphical Tropical Weather Outlook | [Active Storms](#) | [Marine Forecasts](#)

**Atlantic - Caribbean Sea - Gulf of Mexico**  
[Tropical Weather Outlook - en Español](#)  
[TAFB Tropical Weather Discussion - Forecasts and Analyses](#)

There are no tropical cyclones at this time.

**Eastern Pacific** (out to 140°W)  
[Tropical Weather Outlook](#)  
[TAFB Tropical Weather Discussion - Forecasts and Analyses](#)

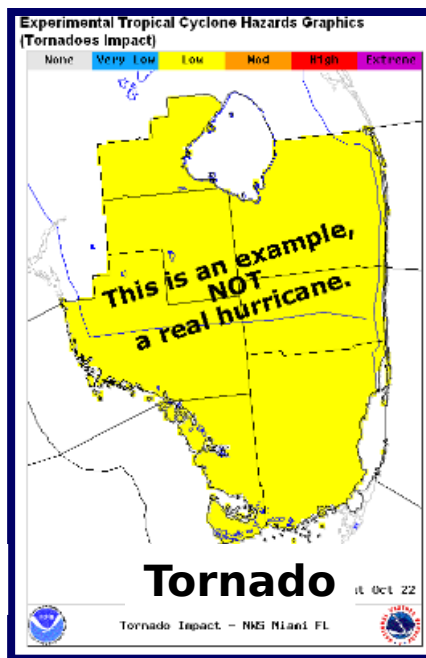
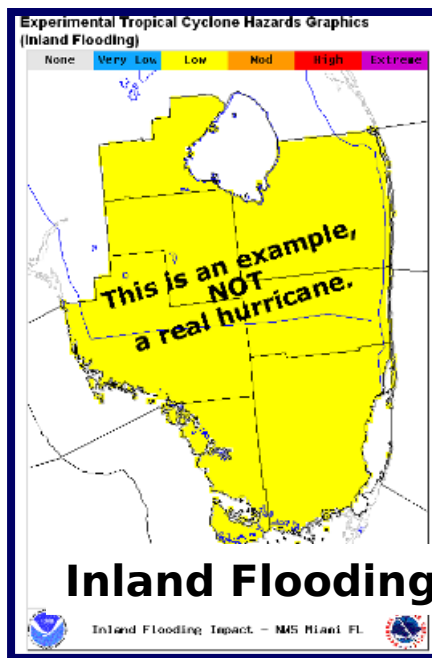
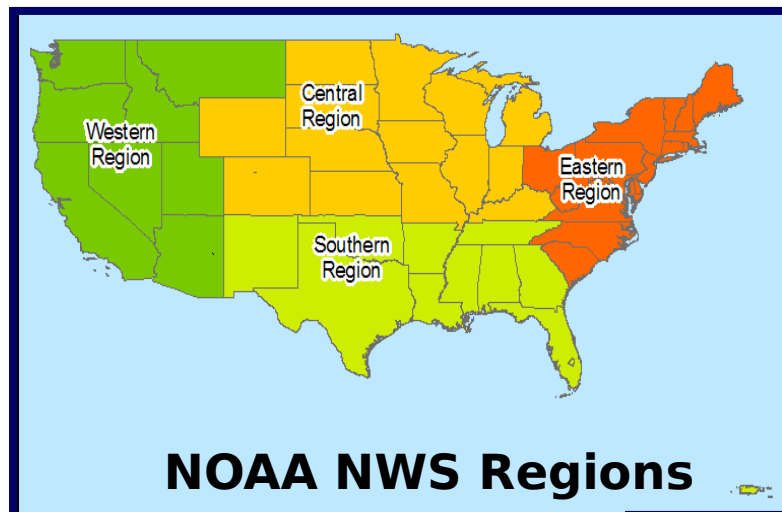
There are no tropical cyclones at this time.

\*Spanish translations courtesy of the MMS, San Juan Weather Forecast Office



# 2009 WFO TC Product Changes

- NHC wind probabilities will be used by WFOs to express uncertainty in local forecasts (operational in NWS southern region and experimental in NWS eastern region).
- All coastal WFOs will issue Tropical Cyclone Impact Graphics (experimental) in 2009.





# **NAVMARFCSTCEN ROLES**

## ***(in addition to OTSR/WEAX)***

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- **Lead/Facilitate/Coordinate:**

- National Hurricane Center (NHC) Conference calls
  - USFF METOC Hurricane Conference calls
  - TELCONs/VTCs for DoD customer to provide situation updates and respond to operator concerns when a tropical system threatens U.S. coastal regions

- **Disseminate:**

- National Hurricane Center Warnings and graphics
  - NAVMARFCSTCEN Tropical Cyclone Formation Alerts
  - Re-issue NWS weather warnings to Fleet Concentration Areas via Naval Message.

- **Provide:**

- Sortie timeline recommendations (based on METOC effects only) to C2F, NAVSOUTH, MSC, etc...
  - Destructive Winds Forecast (DWF) in support of TC COR decisions to (CNIC) CNRMA, CNRSE, and NDW.



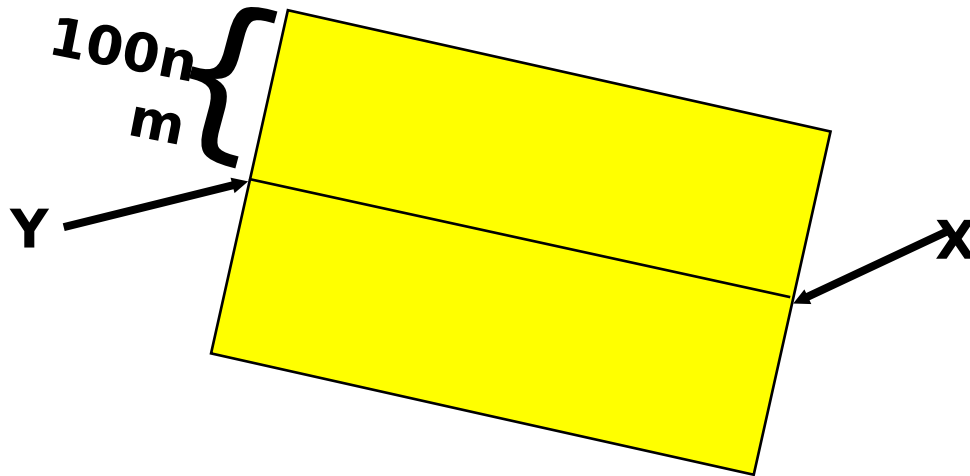


# **NAVMAFCTCEN**

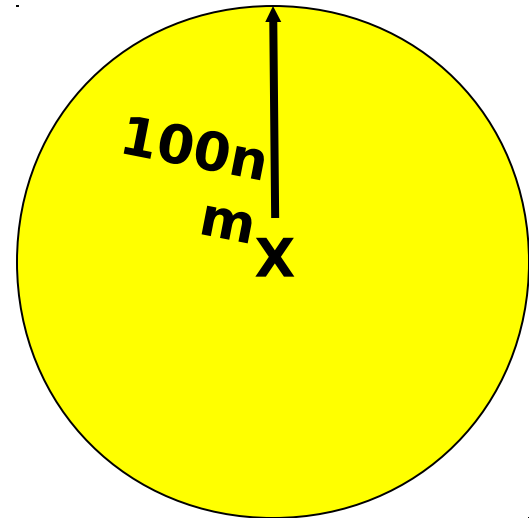
## ***Tropical Cyclone Formation Alerts***

### ***(TCFA)***

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**TC formation possible between  
position X and Y in the next 24  
hrs**

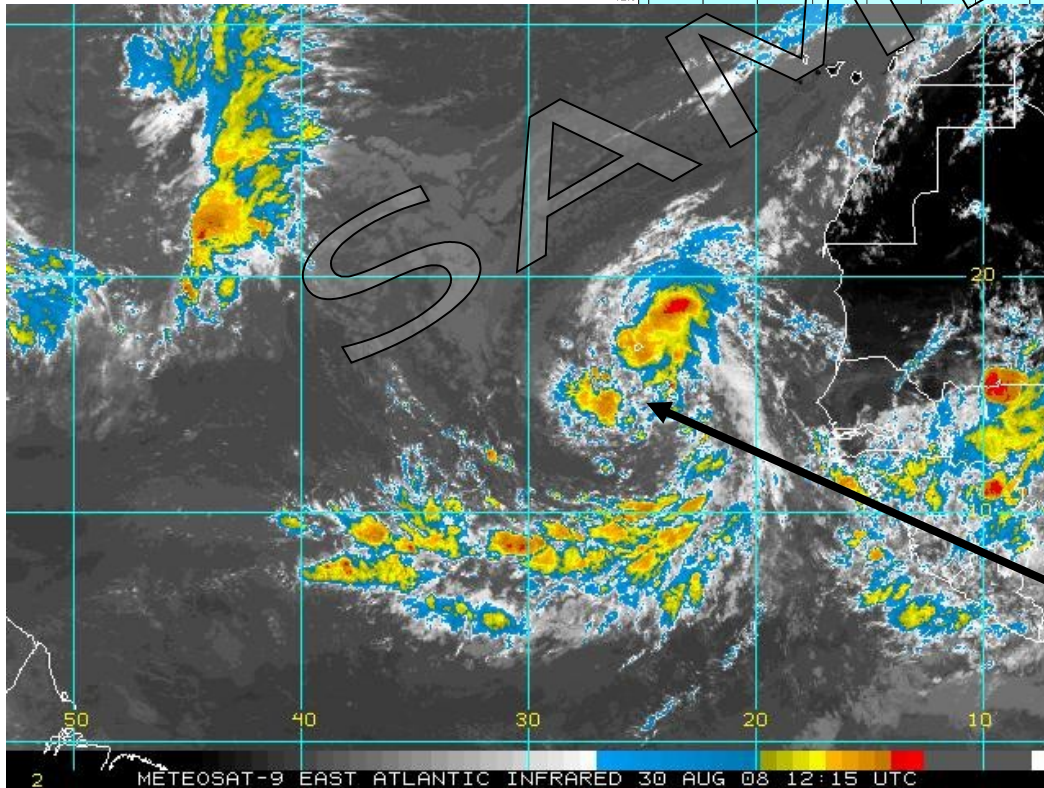
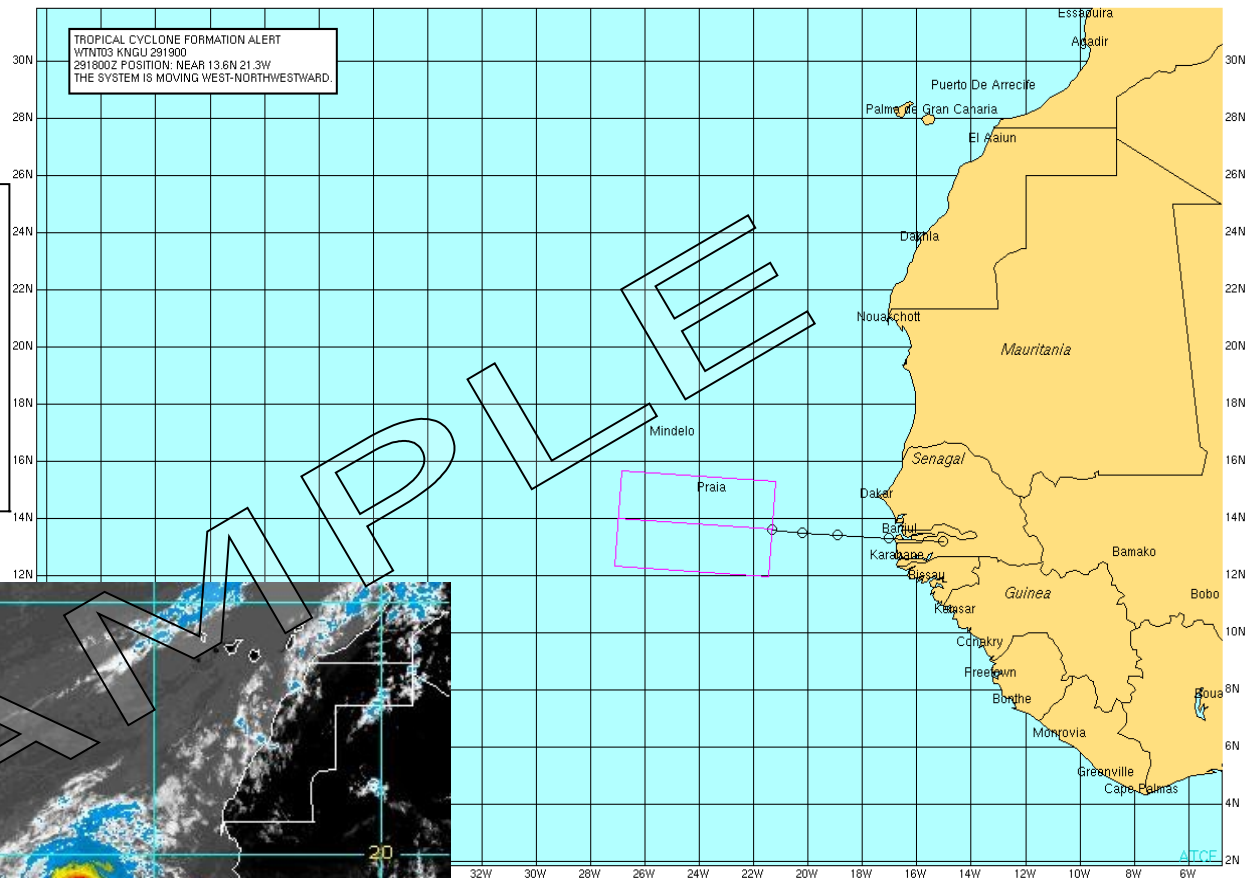


**TC formation possible within  
100nm of point X in the next 24  
hrs**

**X is the current position of a Tropical Disturbance (organized  
convection).**



# Tropical Cyclone Formation Alert valid 29/1900z to 30/1900z



**Invest Area 97L  
moving WNW @ 10  
to 15 kts.**



# Destructive Winds Forecast (DW)

CNRSE			STORM DISCUSSION					
Warning Time: 2200Z, 11 JUN 07 Warning No. 6 Warning Posit: 25.1N 087.8W Moving 360 @ 08 kts			1. AS OF 120000Z, TROPICAL STORM ALBERTO 01L WAS LOCATED NEAR 25.0N 87.8W WITH MAX WINDS OF 40 KNOTS WITH GUSTS TO 50 KNOTS MOVING 360 DEGREES AT 08 KNOTS. THIS SYSTEM HAS REMAINED UNORGANIZED WITH THE HEAVIEST CONVECTION DISPLACED FROM THE CENTER OF LOW PRESSURE. THIS SYSTEM IS EXPECTED TO TURN NORTHEAST TOWARDS NORTHERN FLORIDA. IN 72 HOURS THIS SYSTEM IS EXPECTED TO BE EXTRATROPICAL NEAR 34N 75W.					
ALL TIMES BELOW IN ZULU (GMT)			ONSET OF DESTRUCTIVE WINDS (50KTS)					Surge Warning?
LOCATION	Duration of 35 Kt Wind	Duration of 50 Kt Wind	(-) 96 Hrs	(-) 72 Hrs	(-) 48 Hrs	(-) 24 Hrs	(-) 12 Hrs	
Roosevelt Roads, PR	6/1/07 12:00 to 6/2/07 12:00	6/2/07 4:00 to 6/2/07 8:00	5/29/07 4:00	5/30/07 4:00	5/31/07 4:00	6/1/07 4:00	6/1/07 16:00	N
Max Wind on Station	6/1/07 18:00	Max Speed / CAT	65	CAT 1				
GITMO, CU								N
Max Wind on Station	6/1/07 18:00	Max Speed / CAT	65	CAT 1				
AUTEC								N
Max Wind on Station	6/1/07 18:00	Max Speed / CAT	65	CAT 1				
Key West								N
Max Wind on Station	6/1/07 18:00	Max Speed / CAT	65	CAT 1				
Cape Canaveral								N
Max Wind on Station	6/1/07 18:00	Max Speed / CAT	65	CAT 1				
Orlando								N

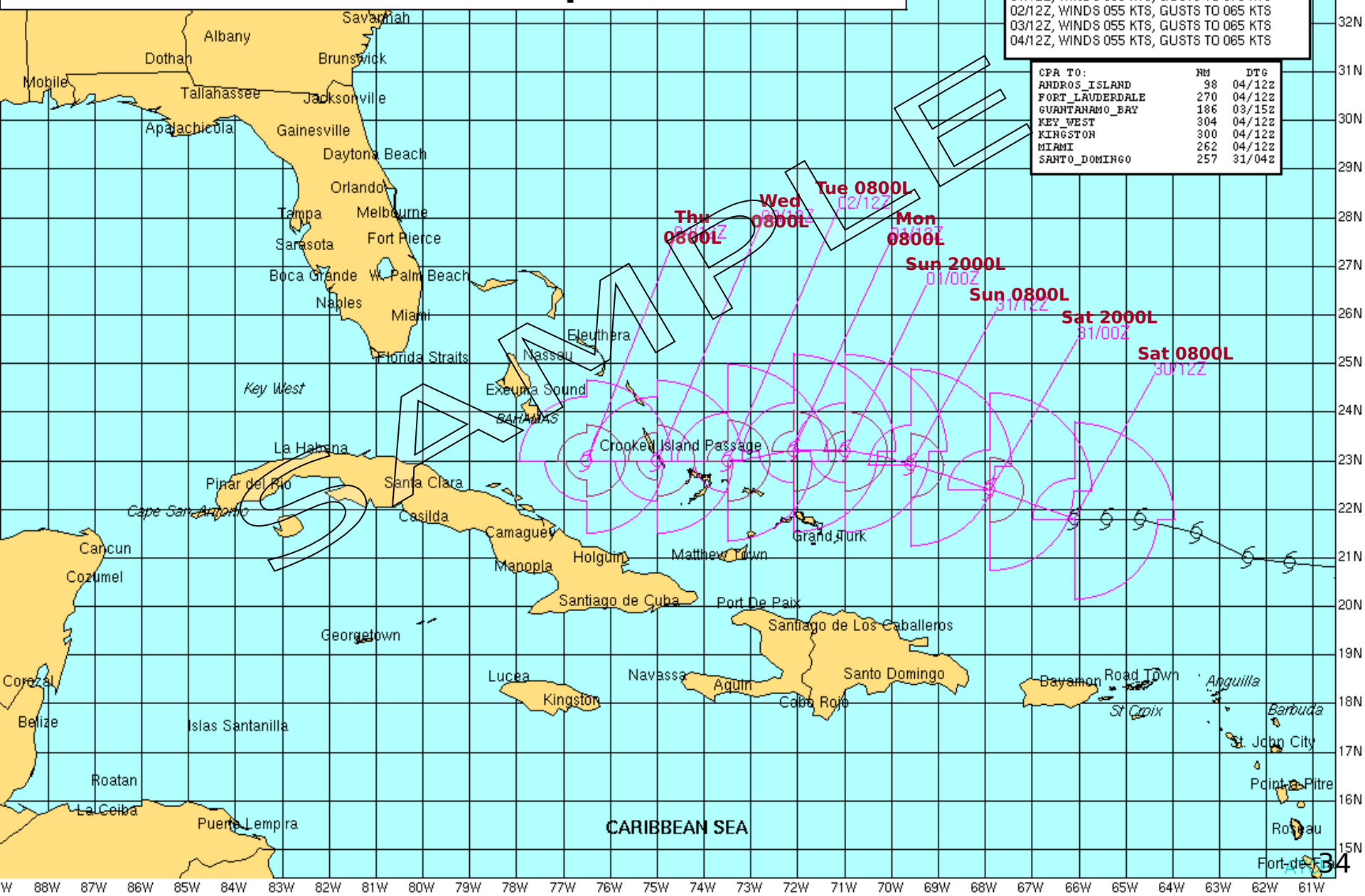


# Tropical Storm Hanna

## NMFC Track Graphic

TROPICAL STORM HANNA (08L) WARNING #10  
 301200Z POSIT: NEAR 21.8N 66.1W  
 MOVING 275 DEGREES TRUE AT 07 KNOTS  
 30/12Z, WINDS 045 KTS, GUSTS TO 055 KTS  
 31/00Z, WINDS 050 KTS, GUSTS TO 060 KTS  
 31/12Z, WINDS 055 KTS, GUSTS TO 065 KTS  
 01/00Z, WINDS 060 KTS, GUSTS TO 075 KTS  
 01/12Z, WINDS 060 KTS, GUSTS TO 075 KTS  
 02/12Z, WINDS 055 KTS, GUSTS TO 065 KTS  
 03/12Z, WINDS 055 KTS, GUSTS TO 065 KTS  
 04/12Z, WINDS 055 KTS, GUSTS TO 065 KTS

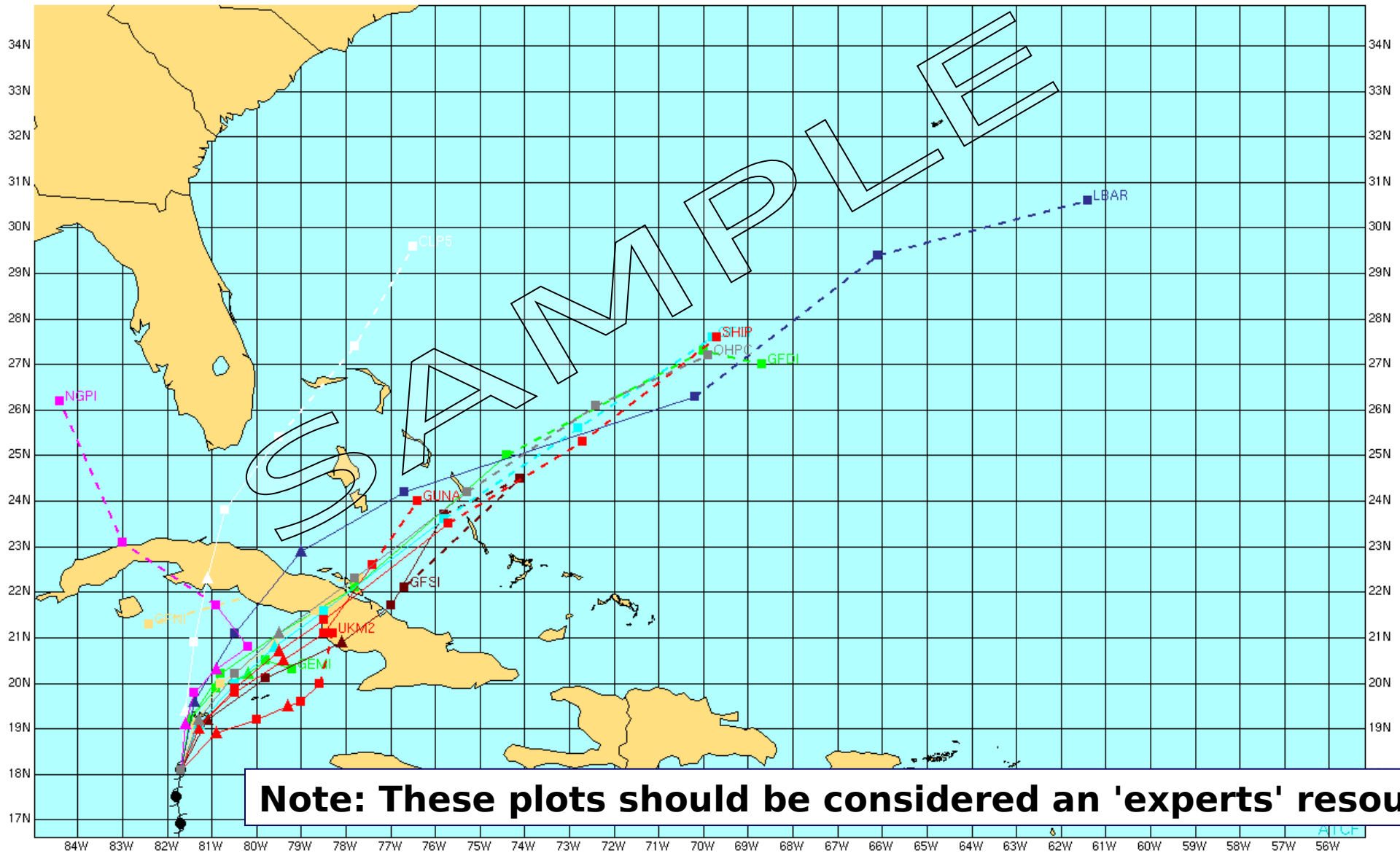
CPA TO:	NM	DTG
ANDROS_ISLAND	98	04/12Z
FORT LAUDERDALE	270	04/12Z
GUANTANAMO_BAY	186	03/15Z
KEY WEST	304	04/12Z
KINGSTON	300	04/12Z
MIAMI	262	04/12Z
SANTO_DOMINGO	257	31/04Z



CARIBBEAN SEA



# Tropical Aids / Track Model Guidance





# ***Numerical Model Guidance***

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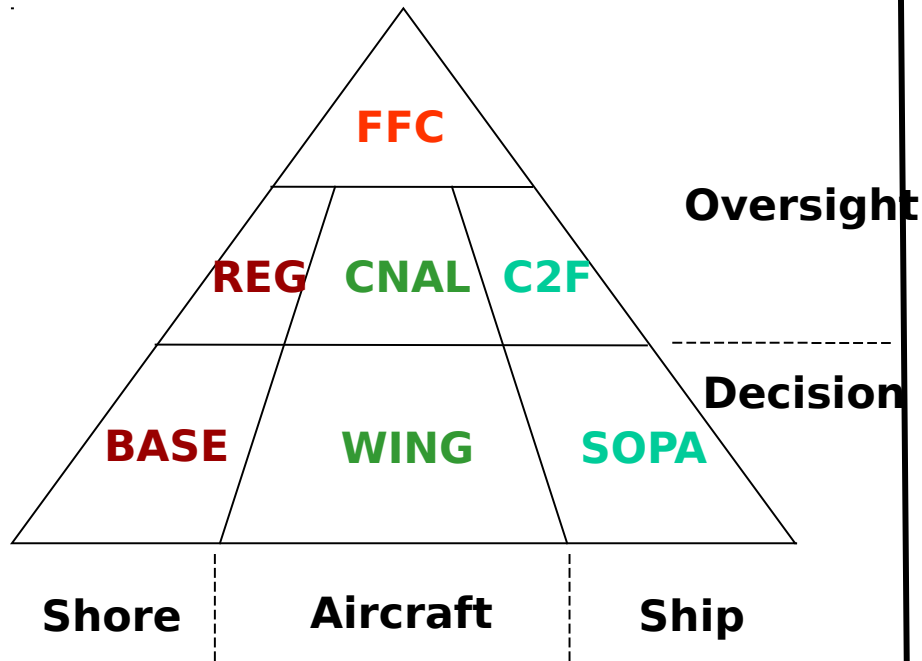
- **The purpose of NMFC's Tropical Aids is to provide tropical cyclone track guidance in an easy-to-read format. These images are used at NMFC for daily tropical weather briefings.**
- **Authorized DoD customers should not make decisions based on model guidance - they should refer to their local/regional Emergency Managers and statements from their local National Weather Service Forecast Office.**
- **Models are frequently prone to LARGE track and intensity errors.**
- **Do not to fixate on any one model forecast.**
- **All models are wrong to some extent. The likelihood that any single model forecast track will actually verify (say within 10 miles) is quite small in most cases. The model track guidance can be useful for getting a *general* idea of which way the storm will go.**
- **The spread of the model guidance often, *but not always*, gives a useful estimate of the uncertainty associated with the forecast.**





# Preparedness Oversight

## Command & Control



- IAW USFF OPORD 2000-07
- Command by negation

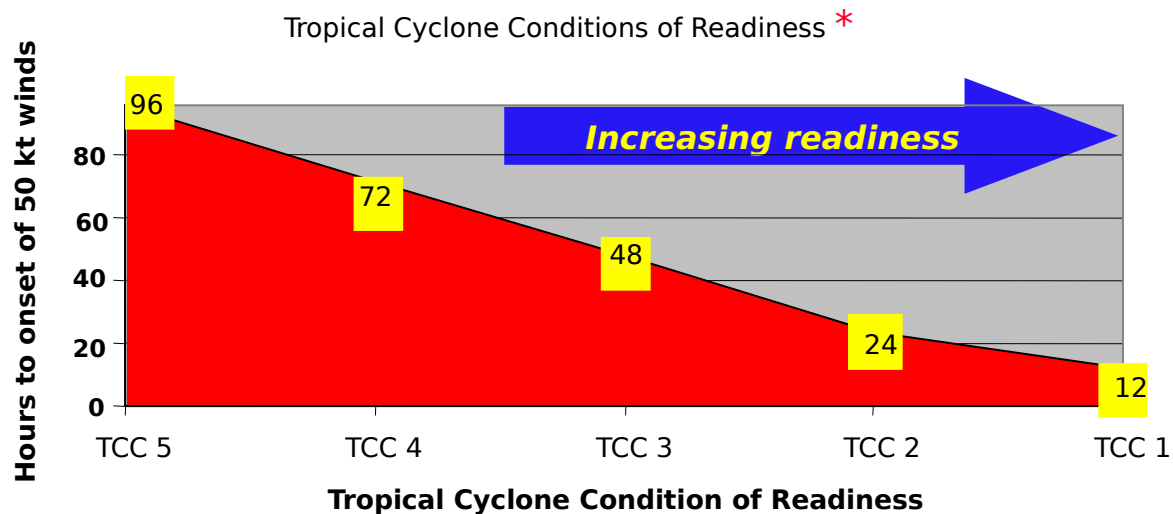
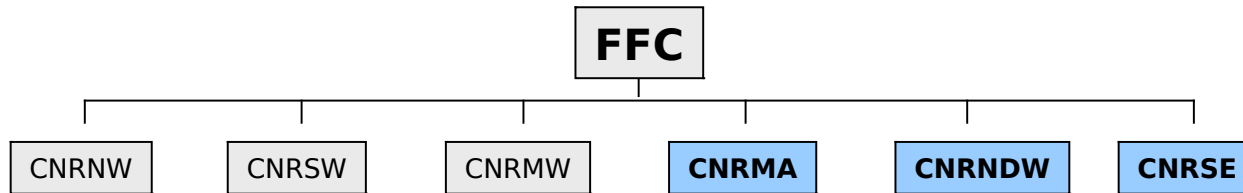
## METOC Battle Rhythm



- 6 Hour Cycle
- Driven by National Hurricane Center
- METOC call led by USFF METOC
- Call facilitated by NAVMARFCSTCEN
- Followed by CNIC brief as requested



# Shore Conditions of Readiness



\* Per OPNAVINST 3140.24F, Regional instructions and FFC OPORD 2000-07

Tropical Cyclone Conditions of Readiness (TC CORs or TCCs) are based on **the time to onset of destructive winds (50<sub>≥</sub> kts)**



# ***SORTIE Conditions***

Senior Officer Present Afloat (SOPA) - orders Sortie  
Sortie Commander - in charge once underway

## **Standing Emergency Sortie Organization** **161713Z FEB 2007)**

**(Refs: FFC OPORD 2000-07 & C2F**

**CTF 183 COMSECONDFLT**  
**CTG 183.1 NORFOLK AREA**  
**CTG 183.2 MAYPORT AREA**  
**CTG 183.3 SPARE**  
**CTG 183.4 INGLESIDE AREA**  
**CTG 183.5 SEALOGLANT SHIPS**  
**(BLACK HULLS)**  
**CTG 183.6 KINGS BAY AREA**  
**CTG 183.7 NEW LONDON AREA**  
**CTG 183.8 MPRA**  
**CTG 183.9 EARLE AREA**

**SOPA**  
**COMSECONDFLT (CTF 20)**  
**COMUSNAVSO (CTF 40)**  
  
**NMAWC CORPUS CHRISTI TX**  
**COMSEALOGLANT**  
  
**COMSUBGRU TEN**  
**COMSUBGRU TWO**  
**COMPATRECONGRU**  
**COMSEALOGLANT**

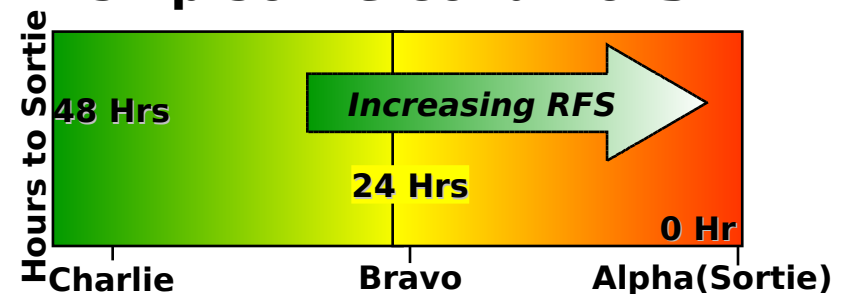
**Sortie Commander**  
**CCSG-12 / CCSG-10**  
**USS HUE CITY**  
  
**MCMRON-2**  
**COMSEALOGLANT**  
  
**COMSUBGRU TEN**  
**COMSUBGRU TWO**  
**COMPATRECONGRU**  
**COMSEALOGLANT**

## **Sortie Criteria**

**(Per FFC OPORD 2000-07)**

- If sustained winds > 50 kts
- Avoid heavy seas > 12 ft wave ht
- Storm surge (high tide) > 4 ft norm

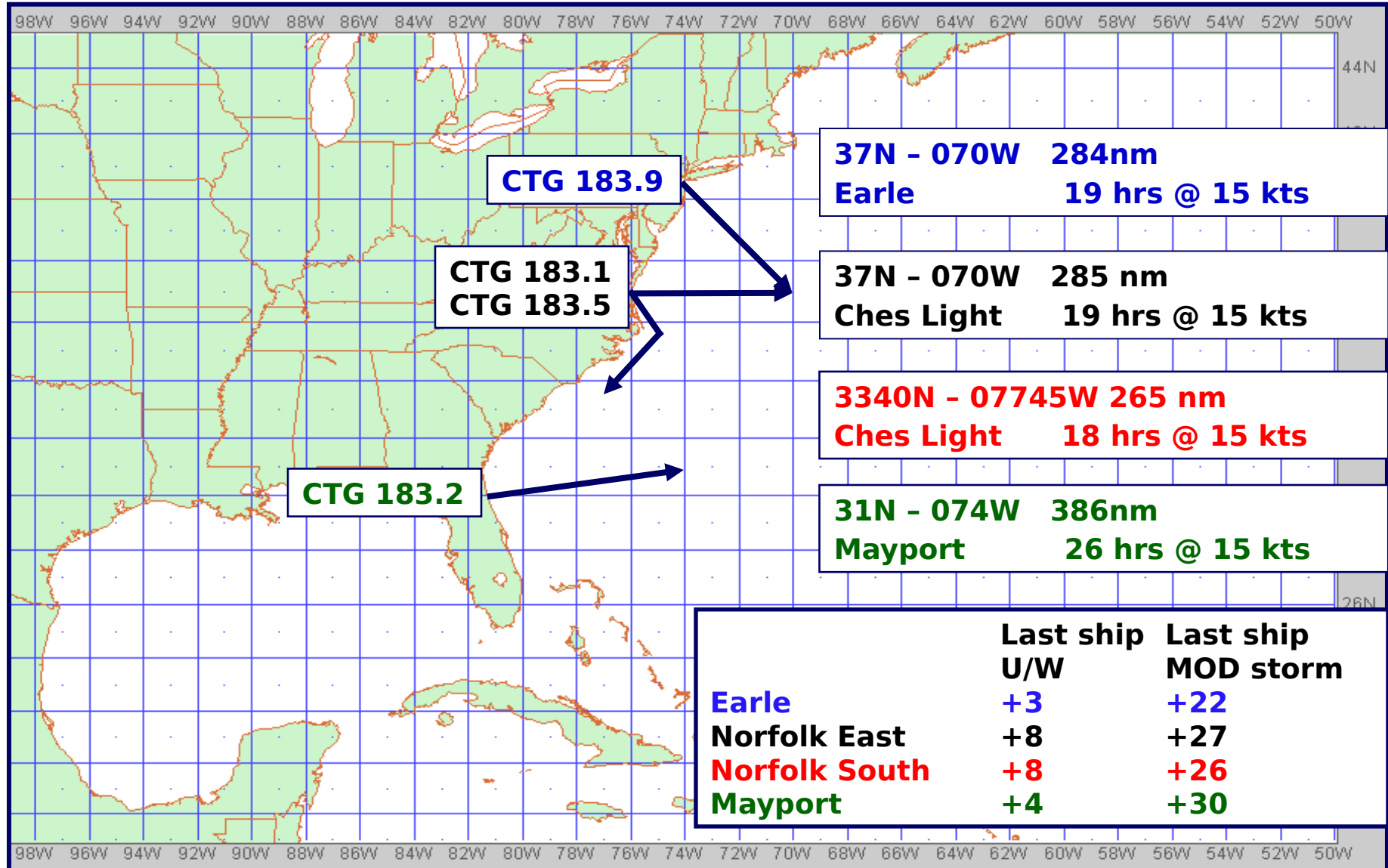
## **Ship Sortie Conditions**







# Notional Sortie Scenarios





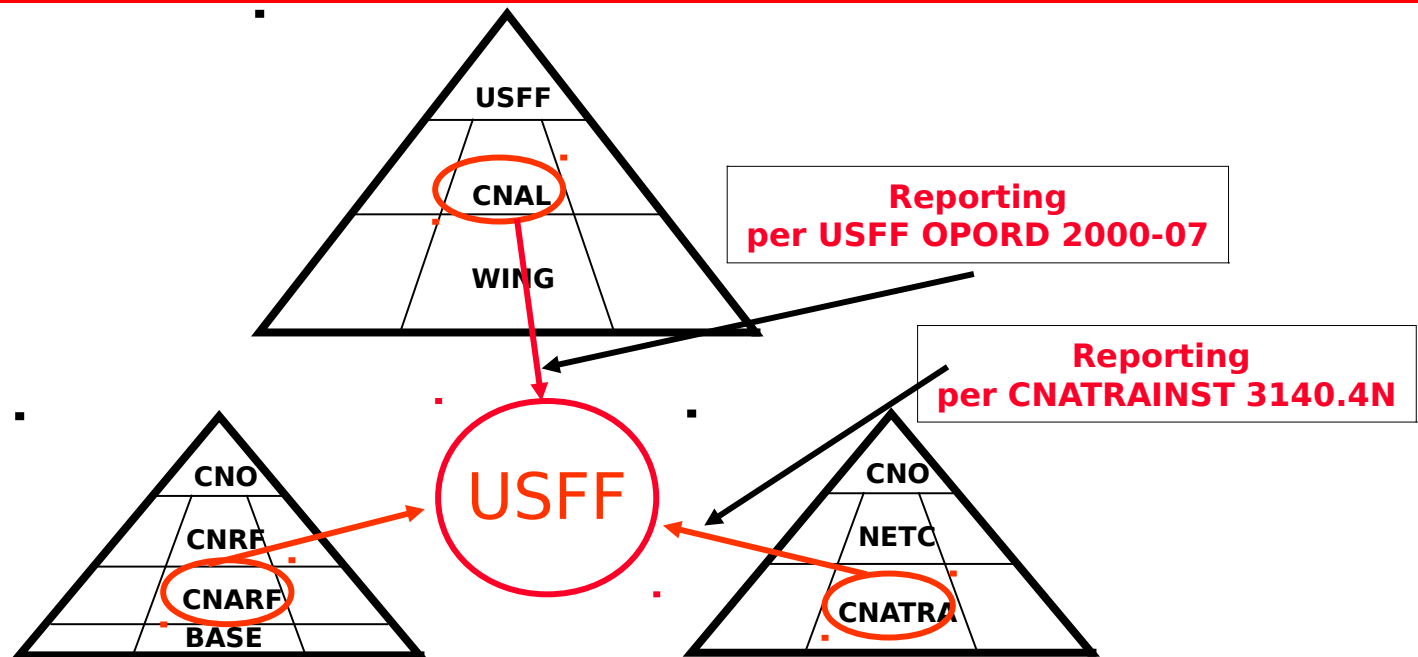
# ***C2F / CTF 183 Guidance***

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- **C2F 242345Z FEB - TF 183 EMERGENCY SORTIE TASK ORGANIZATION**
- **CTF 183 290119Z FEB - TF 183 OPGEN 08-001**
  - **Sortie Criteria (Destructive Winds, Heavy Seas & Storm Surge)**
  - **Sortie Task Unit Commanders designate AREC, HEC & SAR coordinator, ready tow ship & aircraft prepared to support SAR**
  - **Attainment Reports within 6-hours of Sortie Condition Order**
- **CTG 183.1 291912Z FEB - TG 183.1 OPTASK COMMS**
  - **Channels 13/16, LP154A, Harbor Common 385.6M**
  - **LP154B, Heavy Weather Common 352.55M**
  - **TA200A, Fleet Tactical-Warning 277.8M**
  - **TA200B, C2F Secure / NAVY RED 336.8M**



# Aircraft Evacuation (HURREVAC)



## HURREVAC CONOPS (Per CNAL/CNATRA Instructions)

- Preparations tied to Tropical Cyclone Conditions of Readiness
- Aircraft out or hangared 12 hrs prior to onset of destructive winds (TCOP 1)

## HURREVAC Criteria (Per CNAL/CNATRA Instructions)

- Forecast winds > 50 kts (CNAL)
- Forecast hurricane winds (CNATRA)
- IAW Base instruction (CNARF)



# ***QUESTIONS?***

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